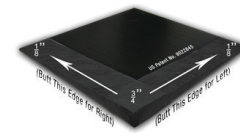


TRI-BUILT® SMARTVENT™ TAPERED END CAP INSTALLATION INSTRUCTIONS



(Do Not Use End Caps on Gable/Rake Edges of the Roof — Use Fabric Squares)

For Installation at the eave's edge near a wall or obstacle to create a sloped shingle transition to zero lift-up at the wall flashing. Note: When using the TRI-BUILT SmartVent Tapered End Cap on a mid-roof application, leave about an 18" space between hips and valleys so not to interfere with the flashing or cap shingles installation. TRI-BUILT SmartVent Tapered End Caps are universal for right or left installations.

STEP 1: Ensure the 1" roof cutout was completed to 12" before the end of the run and the metal drip edge was previously installed. Nail the TRI-BUILT SmartVent Tapered End Cap as shown with the bottom edge flush with the drip edge. Leave about 3" to 6" of roof deck showing from the wall. Nail at all four corners using nails that penetrate through the roof sheathing.

STEP 2: Butt the TRI-BUILT SmartVent 36" section against the TRI-BUILT SmartVent Tapered End Cap tightly and nail per TRI-BUILT SmartVent directions.

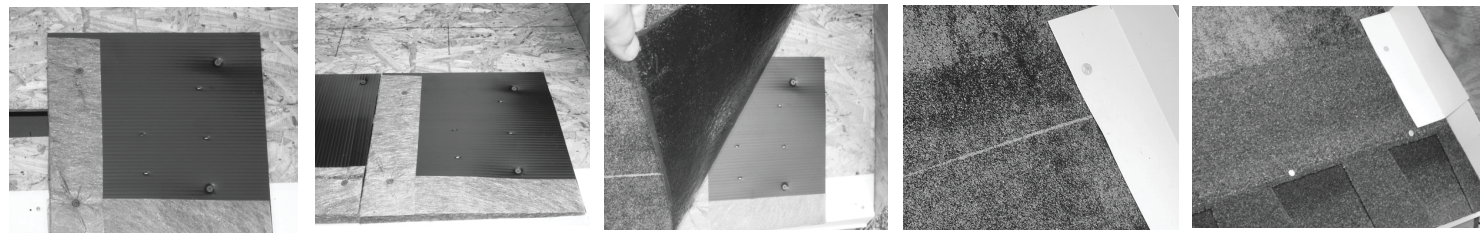
STEP 3: Continue installing the remaining TRI-BUILT SmartVent over the roof deck sheathing and previously installed drip edge.

STEP 4: Install 36" wide ice & water membrane only over the TRI-BUILT SmartVent and TRI-BUILT SmartVent Tapered End Cap tight against side wall and continuously across the roof. Keep 36" ice & water membrane flush to the TRI-BUILT SmartVent lift edge which will cover the entire top surface of the vent. Install ice & water membrane a few inches up the wall when possible.

STEP 5: Ensure the ice & water membrane is only over the vent and tight against the wall for eave edge installations.

STEP 6: Install wall step flashing over ice & water membrane and up the wall. Allow a 1/2" to 1" eave edge overhang for shingles. Ensure step flashing is installed at each shingle course.

STEP 7: Install starter course and shingles with a 1/2" to 1" overhang beyond the lift edge of the TRI-BUILT SmartVent. Ensure step flashing is installed at each course with the proper coverage.



STEP 1

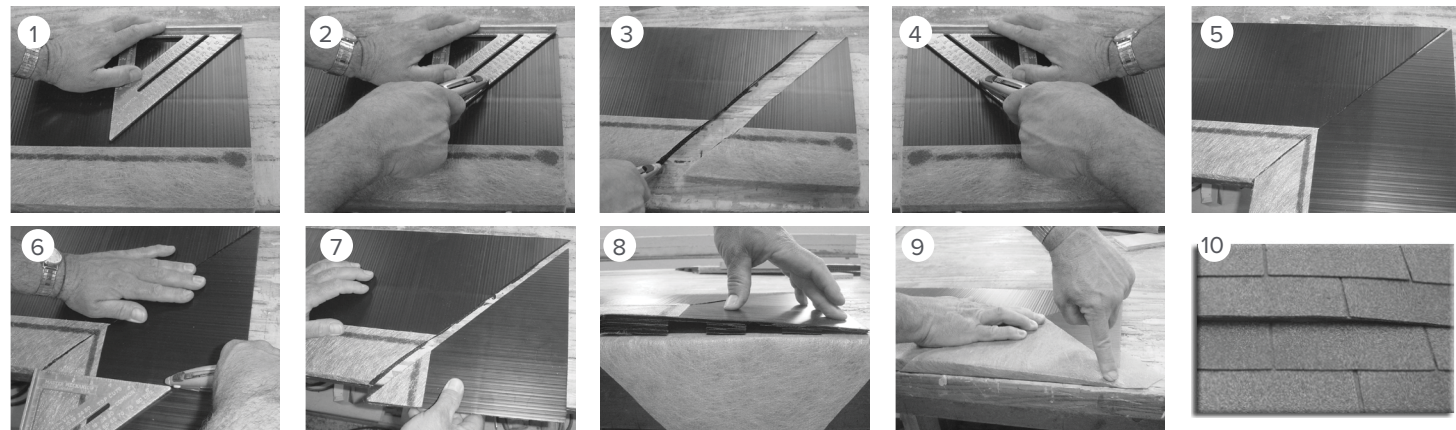
STEPS 2 & 3

STEPS 4 & 5

STEP 6

STEP 7

Cut 45° angle with razor knife starting from the tapered edge working toward the fabric exterior. Discard the cut-off piece (fig. 1-3). With another piece of TRI-BUILT SmartVent make opposite cut and discard the cut-off piece (fig. 4).



Install tight & cut flush with lift edge. Using a square & razor knife (fig. 5 & 6). Place end cap to the TRI-BUILT SmartVent & place fabric half below (Fig 7). Nail TRI-BUILT SmartVent end cap in place with fabric half showing (fig. 8). Take the fabric and wrap it over the vent & nail it tight. Install ice & water membrane & shingles (fig. 9). Finished Installation. Ensure shingle overhangs 1/2" past the lift edge (Fig. 10).

TRI-BUILT® SMARTVENT™ ROOF-TO-WALL OR SHED ROOF INSTALLATION INSTRUCTIONS

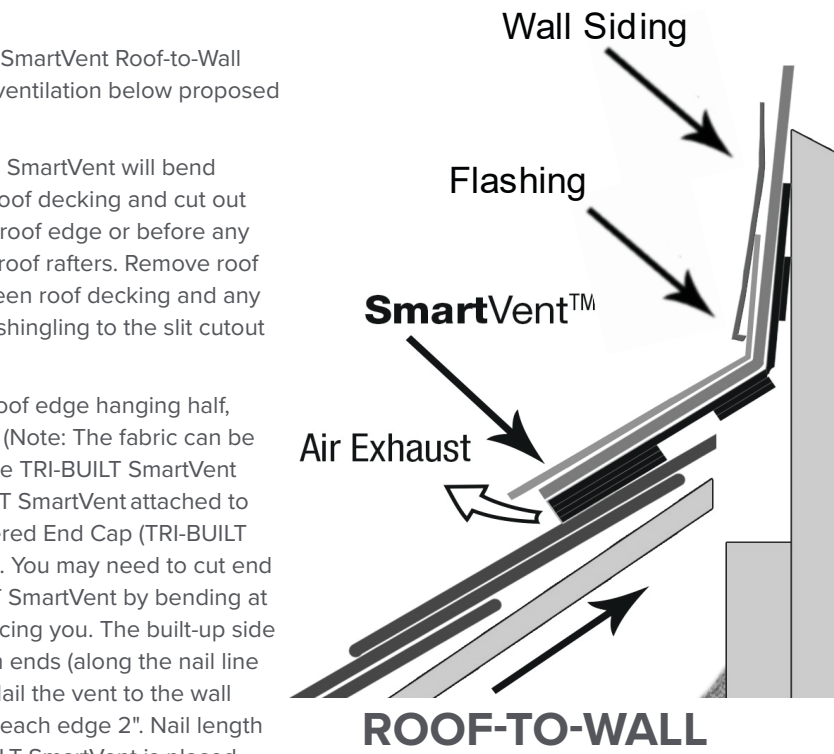
STEP 1: Shingle up to the area that requires the TRI-BUILT SmartVent Roof-to-Wall vent application. Ensure there is proper continuous intake ventilation below proposed Roof-to-Wall ventilation.

STEP 2: Measure 3" out from the wall where the TRI-BUILT SmartVent will bend up on the wall. Strike a chalk line at the 3" mark along the roof decking and cut out the roof decking (leave about 12" of decking uncut at each roof edge or before any wall, valley, hip, etc.). Ensure the cuts do not penetrate the roof rafters. Remove roof decking and ensure there is at least 1" of clear space between roof decking and any header board. This allows the air to escape. Complete the shingling to the slit cutout but ensure the shingles do not cover the cutout opening.

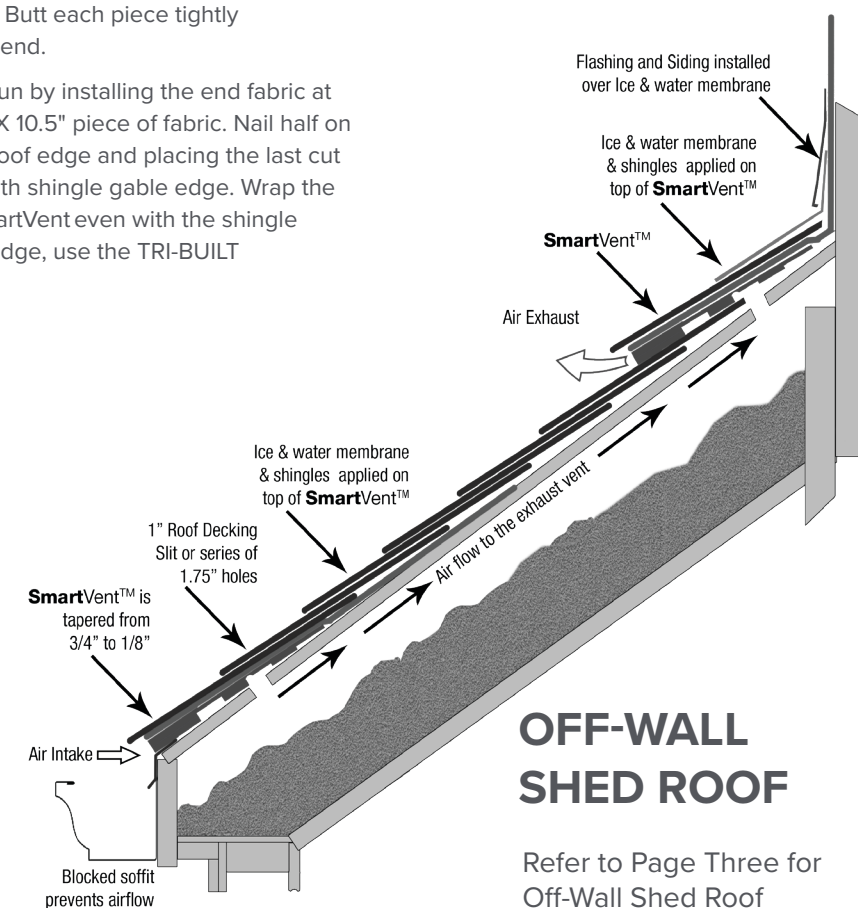
STEP 3: Install the TRI-BUILT SmartVent end fabric at the roof edge hanging half, 5.25", beyond the roof edge and nailing fabric to roof deck (Note: The fabric can be folded to 6" X 10.5" to fit properly before nailing to cover the TRI-BUILT SmartVent roof edge. Fabric is not required on the section of TRI-BUILT SmartVent attached to the wall, only the roof area). Use TRI-BUILT SmartVent Tapered End Cap (TRI-BUILT Part #89262) when wall vent is short from gable/rake edge. You may need to cut end cap to fit around the corner post. Next, install the TRI-BUILT SmartVent by bending at the routed hinge and having the smooth side of the vent facing you. The built-up side will be down against the roof and wall and nailed at 2" from ends (along the nail line in the fabric) and two nails evenly spaced between them. Nail the vent to the wall with matching spacing of nails. Ensure the vent is nailed at each edge 2". Nail length should penetrate through roof decking. Ensure the TRI-BUILT SmartVent is placed tight against the roof and wall before securing with nails. Butt each piece tightly against the previous one. Continue to the opposing roof end.

STEP 4: Complete the TRI-BUILT SmartVent end of the run by installing the end fabric at the shingle edge by folding one side over to make a 6" X 10.5" piece of fabric. Nail half on the roof (5.25") and leave half (5.25") hanging over the roof edge and placing the last cut piece of TRI-BUILT SmartVent over the fabric but even with shingle gable edge. Wrap the remaining fabric tightly over the top of the TRI-BUILT SmartVent even with the shingle end and nail. If stopping short of the shingle edge/rake edge, use the TRI-BUILT SmartVent Tapered End Cap to start or terminate the vent run.

STEP 5: It is recommended to install ice and water membrane on top of the TRI-BUILT SmartVent extending up the wall about 12" to ensure a weather tight seal, lapping under any house wrap so water can drain over the ice & water membrane. Next, shingle above the TRI-BUILT SmartVent to the wall, overhanging the top shingle past the TRI-BUILT SmartVent lifted edge by 1/2" and then install a flashing that covers at least 4" of the shingle and extends up the wall at least 4". Metal or vinyl flashing can be used. Ensure all openings in the wall above the roof-to-wall area are completely sealed such as lower and upper window corners and flashing details around windows, doors and trim boards. When metal flashing is used instead of shingles over the TRI-BUILT SmartVent, ensure the metal flashing overhangs the TRI-BUILT SmartVent lift end by 1/2" and up the wall 4" minimum. Secure flashing to wall. TRI-BUILT SmartVent is rated at 9 NFVA.



ROOF-TO-WALL



OFF-WALL SHED ROOF

Refer to Page Three for Off-Wall Shed Roof Directions

TRI-BUILT® SMARTVENT™ VALLEY INSTALLATION INSTRUCTIONS



Decide if you will miter (Figure 1) or vent the valley (Figure 2). If miter skip to Step 4 and see Figure 1.

STEP 1: First strike a chalk line at 6 1/2" away from the centerline of the valley on each side of the roof deck.

STEP 2: Drill 1 3/4" holes at 3" on center along the chalk lines (or 15" wafer cuts at 6" intervals at 6" to 7" from the centerline). Do not drill or cut through any rafters. Install a 12" x 12" square piece of ice and water membrane at the bottom edge of the plywood roof deck where it meets the metal drip edge and fascia board before installing the lower TRI-BUILT SmartVent piece. This membrane will cover the metal drip edge mitered joint completely.

STEP 3: Install one TRI-BUILT SmartVent with the smooth side up and the thick edge toward the valley. Install a second SmartVent on the opposing side matching the thick edges together at the centerline. Install with eight nails, four along the upper edge and four along the lower edge of each TRI-BUILT SmartVent piece. Angle cut the TRI-BUILT SmartVent as shown in Figure 2.

STEP 4: Make sure you install a 12" x 12" square piece of ice and water membrane at the bottom edge of the plywood roof deck where it meets the metal drip edge and fascia board before installing the lower TRI-BUILT SmartVent piece. This membrane will cover the metal drip edge mitered joint completely. Cut and/or miter the TRI-BUILT SmartVent with a razor knife at the bottom and the top of the valley to conform to the valley angle. Wrap the enclosed fabric on any exposed edges of TRI-BUILT SmartVent when installing.

STEP 5: Install ice and water membrane over the top of the TRI-BUILT SmartVent after the vent is installed. Continue your roof shingling per manufacturer's instructions.

TRI-BUILT SMARTVENT VALLEY MITER DIAGRAM

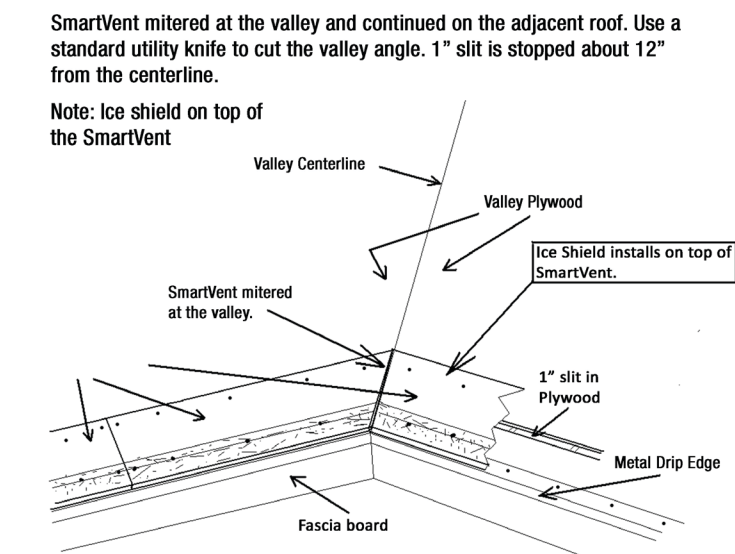


FIGURE 1

TRI-BUILT SMARTVENT VENTING THE VALLEY

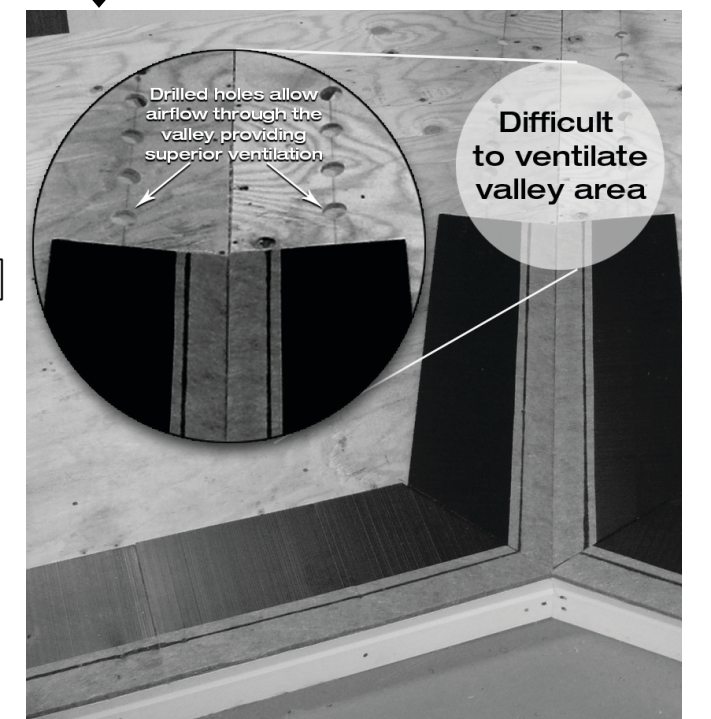


FIGURE 2

TRI-BUILT® SMARTVENT™ MID-ROOF, OFF-WALL, & OFF-PEAK INSTALLATION INSTRUCTIONS

STEP 1: Shingle up to the area that requires TRI-BUILT SmartVent.

- Do not install any underlayment or shingles above the location of the TRI-BUILT SmartVent prior to the completion of TRI-BUILT SmartVent installation.
- Cut or stop underlayment at top of shingle course where 1" slit will be cut.
- Ensure there is a minimum 1" clear rafter width air space from soffit to ridge.



STEP 3: Creating the intake slot.

- When cutting the 1" slit, stay 12" in from the roof edges, walls, valleys, hips, pipes or any other obstruction. Use a circular saw.
- Using the circular saw, use safety when cutting and set blade depth so you do NOT cut into the rafters!



STEP 5: Nail the TRI-BUILT SmartVent so that it is even with the bottom of the edge where the next course of shingle would be installed.

- If starting at the rake edge, install the fabric method by wrapping the fabric around the end of the vent (see TRI-BUILT SmartVent eave vent directions steps 2, 3 & 4). If starting or ending within the shingled area follow the TRI-BUILT SmartVent Tapered End Cap installation page.
- Starting 2" from each end of the TRI-BUILT SmartVent piece, nail the TRI-BUILT SmartVent to the roof decking at the top edge with 4 nails spaced evenly See Step 4 image.
- Nail the bottom with four nails matching the spacing of the top row of nails at the nail line in the fabric.

STEP 7: Install a starter course of shingle overhanging the TRI-BUILT SmartVent edge by at least 1/2" and not more than 3/4".

Do Not install shingles even with the vent, they must overhang.



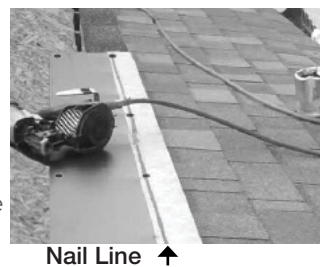
STEP 2: Make lines at the 6" and 7" marks as shown below.

- At the location of the shingle course (where the TRI-BUILT SmartVent is to be located) measure up from the bottom edge of that shingle 6" to 7" before installing that course of shingle.
- Strike chalk lines to mark the 1" cutout. Use a circular saw to cut plywood. Do Not Cut Into Rafters!
- See step 3 before cutting through the top of the previously installed shingle and plywood along the chalk lines.



STEP 4: Remove the plywood decking after the continuous cut and ensure the airflow is unobstructed from the cut slit to the ridge or off-ridge exhaust vent.

- Ensure insulation is not blocking airflow.
- Ensure the full roll width of ice shield installs on top of TRI-BUILT SmartVent.
- Shingles must have a 1/2" overhang beyond the lifted edge of the vent.



STEP 6: Apply a roll of ice and water membrane on top of the TRI-BUILT SmartVent and directly to the plywood above the TRI-BUILT SmartVent.

- If underlayment was already installed, tuck the ice and water membrane under the higher course of underlayment so there is a 3" overlap.
- Ensure the ice and water membrane adheres to the TRI-BUILT SmartVent and wood decking and not the existing underlayment.



STEP 8: Install the shingles over the starter course and continue to shingle the roof normally.

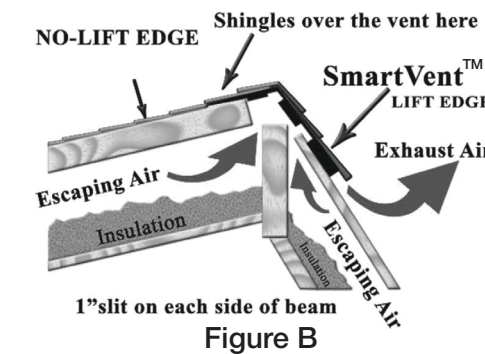
Note: TRI-BUILT SmartVent mid-roof valley installation is required to be terminated and the use of a TRI-BUILT SmartVent Tapered End Cap is to be used to start and stop the TRI-BUILT SmartVent on each side of the valley and when stopping short of the rake edges.



TRI-BUILT® SMARTVENT™ DORMER PEAK INSTALLATION INSTRUCTIONS



STEP 2: Install Shingles & TRI-BUILT SmartVent on Lift Side First Which is the Steeper Pitch Side at 4/12 or Greater. After roof shingles are installed on the lift side of the roof, begin at one end of the roof. A nailing area on TRI-BUILT SmartVent is approximately 2" in from the edge of the product on either side with four nails per side equally spaced starting at the edge and ending at the opposite edge. Nail TRI-BUILT SmartVent to the roof decking using 1 1/2" - 2" roofing nails. Ensure nails penetrate all the way through the roof decking. Use at least four nails per side per piece. In the TRI-BUILT SmartVent box are pieces of fabric (approx. 10 1/2" square) that will be used to seal the gable ends. Wrap the fabric around the end of a piece of TRI-BUILT SmartVent. When using the fabric, install the piece so that an equal amount of fabric is on top and on the bottom. Nail the fabric to the roof and bend it around the piece of TRI-BUILT SmartVent.



STEP 3: Install Shingles/Rubber Roof on No-Lift Side. After the TRI-BUILT SmartVent is installed, complete the no-lift side of the roof by extending the underlayment, shingles (or rubber roof) over the entire TRI-BUILT SmartVent. Install cap shingles over TRI-BUILT SmartVent as per the manufacturer instructions, overhanging the lift edge by 1/2". Ensure that about 1/2" of the shingle cap extends past the lift edge. TRI-BUILT SmartVent is strong enough to stand up to nail guns during shingle installation. Use extra long roof nails (1 1/2" to 2" nails) for securing the shingles. Shingle cap nails should penetrate through vent and roof deck. (Figure B) NOTE: Low slope roofs less than 4/12 must have the No-Lift side nailed directly to the roof deck. On the No-Lift side rubber roof or shingles extend over the entire SmartVent sealing the No-Lift side from weather conditions. Install cap shingles as you normally do, leaving 1/2" overhang on lift side.

- NOTES:**
- TRI-BUILT SmartVent can be installed under virtually any shingle course when proper installation techniques are used.
 - TRI-BUILT SmartVent is nail gunnable.
 - TRI-BUILT SmartVent should be installed on shingled roofs with a minimum 4/12 pitch. There is no maximum slope installation.
 - Use of ridge or off-ridge exhaust vents is required.
 - Use TRI-BUILT SmartVent Tapered End Caps when terminating TRI-BUILT SmartVent within the shingled area of the roof.



US Patent #6,447,392



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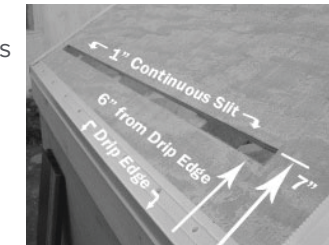
TRI-BUILT SmartVent Tapered End Cap item #89262

TRI-BUILT® SMARTVENT™ EAVE EDGE INSTALLATION INSTRUCTIONS

(Do not install on less than 4/12 pitched roof.)

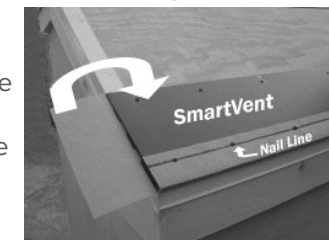
STEP 1: Cut a slit 1" wide (or a series of 1 3/4" holes at 3" on center) into the roof decking 6" to 7" up from the drip edge. TRI-BUILT SmartVent is rated 9NFA.

- Ensure drip edge has been installed.
- Do not cut slit within 12" of any side or valley/wall intersection, or any other obstruction.
- Do not cut into the rafters.
- Ensure insulation or other obstructions are not blocking the flow of air extending from the cut slit to the roof's ridge, or other exhaust devices. (Use of SmartBaffle is recommended)
- Properly sized ridge or off-ridge exhaust vents are required. (SmartRidge II is recommended)



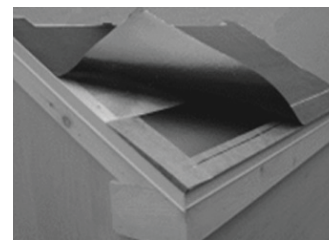
STEP 3: Lay the 3' piece of TRI-BUILT SmartVent even with the drip edge and at the roof rake drip edges

- Starting 2" from each end of the TRI-BUILT SmartVent piece, nail the TRI-BUILT SmartVent to the roof decking at the top edge with 4 nails spaced evenly.
- Nail the bottom with four nails matching the spacing from the top row of nails along the nail line.
- Each section requires a total of 8 nails (nails should be a minimum of 1 1/2", enough to penetrate through the roof decking).
- Wrap the end fabric tightly so it covers the outer edge of the TRI-BUILT SmartVent and nail it in place using two nails, one high and one low.



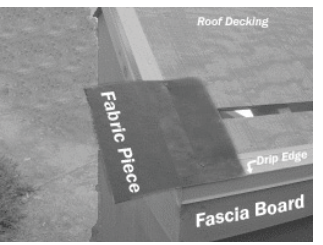
STEP 5: Install ice and water membrane on top of the SmartVent.

- Full width ice & water membrane (36") is required to be installed over the TRI-BUILT SmartVent in all environments. Install ice & water membrane flush with lift edge of TRI-BUILT SmartVent and flush on rake edges.
- Ensure the upper underlayments are lapped over the lower underlayments/ice & water membrane at all areas of the roof.



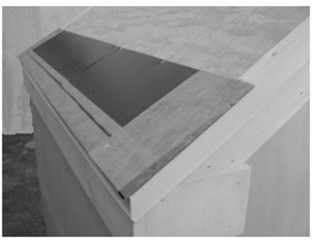
STEP 2: Place the fabric piece half way on the roof rake side edge and even along the drip edge. (Fabric sheets included in each box)

- Half of the fabric should hang over the rake side edge of the roof.
- Nail the fabric in place with 2 roofing nails, one high and one low.
- TRI-BUILT SmartVent Tapered End-Caps (sold separately) are available for terminating an installation prior to an obstruction such as a wall, chimney, hip, valley or pipe.



STEP 4: Continue installing TRI-BUILT SmartVent until the last piece.

- Repeat steps 2 and 3 before laying the final TRI-BUILT SmartVent piece on the other end of the roof.
- TRI-BUILT SmartVent should align flush with rake fascia on all gable sides & wrapped with enclosed fabric as shown.
- 36" wide ice & water membrane gets installed as the next step over the TRI-BUILT SmartVent and against the upper wood roof deck.



STEP 6: Shingle the roof as usual.

- Beginning with starter course, shingles must overhang TRI-BUILT SmartVent by at least 1/2" and no more than 1".
- Never install shingles flush with fabric edge on the eaves or rake edge. Overhang shingle on rake edges by 1/2" or more.

1/2" to 1" overhang at the eaves edge

